

# WINTER SOLSTICE ICE LANTERNS



**Science, art, nature, and history all come together in this luminous holiday activity! Making Winter Solstice Ice Lanterns provides opportunities to explore cross-cutting concepts while engaging the whole family in a new winter tradition to foster social-emotional learning.**

## HISTORY

The winter solstice, which takes place on December 21<sup>st</sup> in the northern hemisphere, marks the exact moment when half of the earth is tilted farthest away from the sun. Because less sunlight reaches the earth on this day, the winter solstice is also the day of the year with the least amount of daytime, known as the shortest day of the year. This also makes it the *darkest* day of the year.

After the winter solstice, the sun and light begin to return to us little by little, with each day becoming a bit brighter and longer. The winter solstice has been celebrated across the world in different cultures for ages because it marks the end of the darkness and the return of light after the darkest day.

*Watch the video below to learn more about the science behind the winter solstice:*



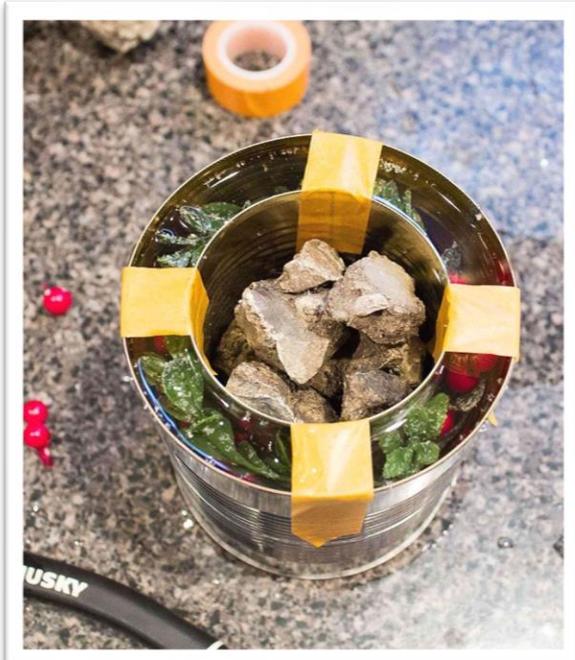
Years ago, as the days leading up to the solstice grew shorter and darker, people saw the nature around them begin to die or go dormant, and many staple foods ceased to grow. Living conditions became harsher with colder temperatures and fewer crops, and there was some uncertainty as to whether the light, warmth, and abundance of the earth would ever return. The solstice was celebrated with festivals and gatherings paying homage to the sun, to light, and to the promise of new life. In Scandinavian countries, one celebratory tradition was to make ice lanterns to symbolize the triumph of light and warmth over the wintery cold and darkness!



## MATERIALS

- Two empty containers, one small enough to fit inside the other with at least ½ inch of room on either side and at the bottom- These can be bowls, tin cans, jars, cups, etc.
- Natural items (i.e. pine sprigs, berries, leaves, flowers, cinnamon sticks, orange slices, etc.)
- Rocks or some other heavy items
- Tea light candles
- Water
- Freezer
- Tape





## STEPS

- 1) Fill the larger container with a small amount of water.
- 2) Place the smaller container inside the larger container so that it is floating inside the larger one.
- 3) Add rocks to the smaller container to hold it down so that the tops of both containers are at about the same level, but do not let the smaller container touch the bottom of the larger container- Leave enough space to allow water to sit between the two containers on the bottom and at the sides, as this water will freeze to become the walls and base of your lantern.
- 4) Place tape on all four sides of the larger container and attach it to the smaller container to help hold it in place.
- 5) Place your natural items in the water between the two containers. When finished, add more water if needed until it is  $\frac{1}{2}$  to 1 inch below the top of the can, and pour water out if it's too high, as water expands when it freezes (and will overflow when it turns to ice!)
- 6) Carefully place the containers in your freezer overnight (or if you live somewhere with freezing temperatures, place them outside overnight!)
- 7) Once the water is frozen, run slightly warm water over the outside of the large container and inside of the small container to help loosen the ice. Once the outsides melt a little bit you will be able to slide the ice lanterns right out of the container molds!
- 8) Place a tea light candle in the center and watch your lantern glow. If you live in a cold climate you can place it outside- If you live in a warm climate, be sure to place it on a plate to collect the water as it melts.



## OPPORTUNITIES FOR SOCIAL-EMOTIONAL LEARNING

As we say goodbye to the year 2020, a year that has felt quite dark for the whole world, many of us are cautiously hopeful for a brighter 2021. When making Winter Solstice Ice Lanterns, consider having conversations with children that provide them the opportunity to express feelings they have had about the “darkness” of this year. Follow these conversations by talking about the seasons, the cycles of darkness and light in nature, and the light on the horizon- Ask them about their hopes and dreams for 2021, about the things there are to be excited about in the months to come, and as you light your candle, use this as a chance to remind them, and yourself, that the sun will inevitably return.



### WINTER SOLSTICE ICE LANTERNS SUPPORT SCIENTIFIC DISCOVERY AND NGSS!

Making ice lanterns provides the opportunity to learn about water’s three stages of matter, its freezing and melting point, its volume and density in different stages, and its preserving effect. Additionally, as you search the neighborhood for natural items to decorate your ice lantern, you can explore the textures, smells, and life stages of the plants you explore, what critters may be living on or near them, which plants are deciduous and which are evergreen, and more. Consider using the iNaturalist app to identify the plants in your neighborhood! As your ice lantern melts, observe the state of those natural items, and document how they have changed (or not changed) after being immersed and frozen in water. As children make ice lanterns, they will: Ask questions and define problems; Develop and use models; Plan and carry out investigations; Analyze and interpret data; and Construct explanations and design solutions. They will explore: Patterns; Cause and effect; Scale, proportion, and quantity; Systems and system models; Energy and matter; Structure and function; and Stability and change, all while learning about: Life Science; Earth Science; and Physical Science.

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